



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx TUN 06.0010X issue No.:1

Certificate history:
Issue No. 1 (2008-6-17)
Issue No. 0 (2006-9-27)

Status: **Current**

Date of Issue: **2008-06-17** Page 1 of 4

Applicant: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany


Electrical Apparatus: **Temperature Transmitter type IM34-**Ex-**i**
Optional accessory:

Type of Protection: **Intrinsic Safety "i", protection by intrinsic safety "iD" and type of protection "n" electrical apparatus**

Marking: **[Ex ia] IIC/IIB and [Ex iaD] and Ex nA [nL] IIC/IIB T4 resp.
[Ex ia] IIC/IIB and [Ex iaD] and Ex nA nC [nL] IIC/IIB T4**

Approved for issue on behalf of the IECEx Certification Body:

Position:

Signature: 
(for printed version)

Date: 2008-06-17

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1
30519 Hannover
Germany



IECEX Certificate of Conformity

Certificate No.: IECEx TUN 06.0010X

Date of Issue: **2008-06-17**

Issue No.: 1

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Manufacturer: **Hans Turck GmbH & Co. KG**
Witzlebenstraße 7
45472 Mülheim an der Ruhr
Germany

Manufacturing location(s):
Werner Turck GmbH & Co. KG
Goethestraße 7
58553 Halver
Germany

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

- | | |
|--|---|
| IEC 60079-0 : 2004
Edition: 4.0 | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements |
| IEC 60079-11 : 2006
Edition: 5 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i" |
| IEC 60079-15 : 2005-03
Edition: Ed 3 | Electrical apparatus for explosive gas atmospheres Part 15: Construction, test and Marking of Type of Protection "n" electrical apparatus |
| IEC 61241-0 : 2004
Edition: 1 | Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements |
| IEC 61241-11 : 2005
Edition: 1 | Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'iD' |

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:

DE/TUN/ExTR06.0034/00
DE/TUN/ExTR06.0035/00
DE/TUN/ExTR08.0014/00

Quality Assessment Report:

DE/PTB/QAR06.0012/00



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The temperature transmitter type IM34-**Ex-**i is an associated electrical apparatus for installation outside of the explosion hazardous area (according IEC 60 079-11) resp. an apparatus for use in Zone 2 explosion hazardous areas (according IEC 60 079-15).

It is used for the measurement of temperatures by means of thermocouples or resistance thermometers (e.g. Pt100) as well as for the safe galvanic separation of the intrinsically safe resp. energy limited circuits and the non intrinsically safe circuits resp. non energy limited circuits.

- The marking for the temperature transmitter type IM34-**Ex-**i as an associated intrinsically safe apparatus outside the explosion hazardous area is [Ex ia] IIC/IIB.
- The marking for the temperature transmitter types IM34-**Ex-Ri and IM34-**Ex-CRi for mounting in explosion hazardous area of zone 2 is Ex nA nC [nL] IIC/IIB T4.
- The marking for the temperature transmitter types without relais for mounting in explosion hazardous area of zone 2 is Ex nA [nL] IIC/IIB T4.

The permissible temperature range is -25 °C ... +70 °C.

CONDITIONS OF CERTIFICATION: YES as shown below:

If the temperature transmitter type IM34-**Ex-**i is mounted in explosion hazardous areas of zone 2 the following special conditions are to be followed.

The temperature transmitter type IM34-**Ex-**i has to be installed in a suitable housing according to EN 60079-15 in such a way, that a degree of protection of at least IP 54 according to EN 60529 is reached.

The connecting and disconnecting of energised non energy limited circuits is only permitted during installation, for maintenance or for repair purposes.

Note: The temporal coincidence of explosion hazardous atmosphere and installation, maintenance resp. repair purposes is assessed as unlikely.

For the supply circuit arrangements have to be taken externally, that the rated voltage is exceeded not more than 40% by transient disturbances.



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Date of Issue: 2008-06-17

Issue No.: 1

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 1

In the future, the temperature transmitter type IM34-**Ex-**i may only be manufactured according to the documents listed in the test report.

The following changes and/or additions were made:

- The temperature transmitter may also be manufactured with the printed circuit boards 2010/4 or 2010/6.
- The temperature transmitter may also be installed as an associated apparatus for locations in which combustible dust may be present. In this case the electrical data for devices of the gas group IIB with the marking [Ex ia] are to be considered. A summary of the electrical data can be found in the annexe "Issue_1_to_IECEX_TUN_06_0010_X".



The given electrical data (see above) for devices of the gasgroup IIB are to be considered.

Issue 1 to IECEx TUN 06.0010X

Electrical data of the temperature transmitter type IM34-**Ex-**i

For applications with marking [Ex ia] IIC/IIB

Supply circuit $U_n = 20 \dots 250 \text{ V a.c. resp. } 20 \dots 125 \text{ V d.c.}$
(Terminals 11, 12) $U_m = 250 \text{ V a.c. resp. } 125 \text{ V d.c.}$

Output circuit $U = 35 \text{ V , } 25 \text{ mA}$
(Terminals 7, 8) $U_m = 250 \text{ V a.c. resp. } 125 \text{ V d.c.}$

Contact circuit $U = 250 \text{ V a.c. , } I = 2 \text{ A , } S = 500 \text{ VA resp.}$
(Terminals 9, 10) $U = 120 \text{ V d.c. , } I = 0.5 \text{ A resp.}$
 $U = 30 \text{ V d.c. , } I = 6 \text{ A}$

Configuration circuit RS232
(Front side stereo jack) $U_m = 250 \text{ V a.c. resp. } 125 \text{ V d.c.}$

Measuring circuit in type of protection Intrinsic Safety Ex ia IIC/IIB.
(Terminals 1...6) Maximum values: $U_o = 5 \text{ V}$
 $I_o = 2 \text{ mA}$
 $P_o = 2.6 \text{ mW}$
Characteristic line: linear

The effective internal capacitance is negligibly small.
Effective internal inductance: 0.2 mH

Ex ia	IIC	IIB
max. permissible external inductance	1000 mH	1000 mH
max. permissible external capacitance	100 μF	1000 μF

The above mentioned values of the outer reactances apply only on condition that simultaneous appearance of the outer inductance and capacitance does not to be considered (e.g. in case of lines).

The intrinsically safe control circuits are safely galvanically separated from all non intrinsically safe circuits up to a peak crest value of the voltage of 375 V.

For applications with marking Ex nA nC [nL] IIC/IIB T4 and Ex nA [nL] IIC/IIB T4

Supply circuit $U_n = 20 \dots 250 \text{ V a.c. resp. } 20 \dots 125 \text{ V d.c.}$
(Terminals 11, 12)

Output circuit $U = 35 \text{ V , } 25 \text{ mA}$
(Terminals 7, 8)

Contact circuit IM34-**Ex-Ri and IM34-**Ex-CRi
(Terminals 9, 10) $U = 250 \text{ V a.c. , } I = 2 \text{ A , } S = 500 \text{ VA resp.}$
 $U = 120 \text{ V d.c. , } I = 0.5 \text{ A resp.}$
 $U = 30 \text{ V d.c. , } I = 2 \text{ A}$

Configuration circuit RS232
(Front side stereo jack)

Measuring circuit energy limited circuits Ex nL IIC/IIB.
(Terminals 1...6) Maximum values: $U_o = 5 \text{ V}$
 $I_o = 2 \text{ mA}$
 $P_o = 2.6 \text{ mW}$
Characteristic line: linear

The effective internal capacitance is negligibly small.
Effective internal inductance: 0.2 mH

Ex nL	IIC	IIB
max. permissible external inductance	100 mH	100 mH
max. permissible external capacitance	3.6 μF	18 μF

The maximum values of the tables are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

The energy limited measuring circuit is safely galvanically separated from all other circuits up to the peak crest value of the voltage of 375 V.



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INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres
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Certificate No.: IECEx TUN 06.0010X issue No.:2

Status: **Current**

Certificate history:
 Issue No. 2 (2011-8-19)
 Issue No. 1 (2008-6-17)
 Issue No. 0 (2006-9-27)

Date of Issue: **2011-08-19** Page 1 of 4

Applicant: **Hans Turck GmbH & Co. KG**
 Witzlebenstraße 7
 45472 Mülheim an der Ruhr
 Germany


Electrical Apparatus: **Temperature Transmitter type IM34-Ex-i and type IM34-Ex-i/24VDC**
 Optional accessory:

Type of Protection: **Intrinsic Safety "i", protection by intrinsic safety "iD" and type of protection "n" electrical apparatus**

Marking: **[Ex ia Ga] IIC resp. [Ex ia Da] IIIC
 resp. Ex nA [ic Gc] IIC T4 Gc
 resp. Ex nA nC [ic Gc] IIC T4 Gc**

Approved for issue on behalf of the IECEx Certification Body: **Karl-Heinz Schwedt**

Position: **Head of IECEx Certification Body**

Signature: 
 (for printed version)

Date: 2011-08-19

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 Hanover Office
 Am TÜV 1
 30519 Hannover
 Germany



IECEX Certificate of Conformity

Certificate No.: IECEx TUN 06.0010X

Date of Issue: **2011-08-19**

Issue No.: 2

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Manufacturer: **Hans Turck GmbH & Co. KG**
 Witzlebenstraße 7
 45472 Mülheim an der Ruhr
 Germany

Manufacturing location(s):
Werner Turck GmbH & Co. KG
 Goethestraße 7
 58553 Halver
 Germany

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STANDARDS:

The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

- IEC 60079-0 : 2007-10** Explosive atmospheres - Part 0: Equipment - General requirements
Edition: 5
- IEC 60079-11 : 2006** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"
Edition: 5
- IEC 60079-15 : 2010** Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
Edition: 4
- IEC 61241-11 : 2005** Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID'
Edition: 1

This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
 DE/TUN/ExTR06.0034/01

Quality Assessment Report:

DE/PTB/QAR06.0012/01



IECEx Certificate of Conformity

Certificate No.: IECEx TUN 06.0010X

Date of Issue: 2011-08-19

Issue No.: 2

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The temperature transmitter type IM34-**Ex-**i and type IM34-**Ex-**i/24VDC is an associated electrical apparatus for installation outside of the explosion hazardous area (according IEC 60 079-11) resp. an apparatus for use in Zone 2 explosion hazardous areas (according IEC 60 079-15). It is used for the measurement of temperatures by means of thermocouples or resistance thermometers (e.g. Pt100) as well as for the safe galvanic separation of the intrinsically safe circuits and the non intrinsically safe circuits.

- The marking for the temperature transmitter as an associated intrinsically safe apparatus outside the explosion hazardous area is [Ex ia Ga] IIC resp. [Ex ia Da] IIC.
- The marking for the temperature transmitter with relay for mounting in explosion hazardous area of zone 2 is Ex nA nC [ic Gc] IIC T4 Gc.
- The marking for the temperature transmitter without relay for mounting in explosion hazardous area of zone 2 is Ex nA [ic Gc] IIC T4 Gc.

The permissible temperature range is -25 °C ... +70 °C.

CONDITIONS OF CERTIFICATION: YES as shown below:

Special conditions for safe use" (only for zone 2 applications)

1. The temperature transmitter type IM34-**Ex-**i resp. type IM34-**Ex-**i/24VDC has to be installed in a suitable housing according to IEC 60079-15 in such a way, that a degree of protection of at least IP 54 according to IEC 60529 is reached.
2. The connecting and disconnecting of energized non intrinsically safe circuits and the operation of switches is only permitted if no explosion hazardous atmosphere exists.
3. Temperature transmitter type IM34-**Ex-**i: For the supply circuit arrangements have to be taken externally, that the peak voltage value does not exceed 140% of 85 V or of the rated voltage (higher value is valid) by transient disturbances.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

See annexe

IECEX TR: DE/TUN/ExTR06.0034/01	File reference: 11 217 079140
IECEX QAR: DE/PTB/QAR/06.0012/01	

In future, the temperature transmitter type IM34-**Ex-**i is manufactured according to the documents listed in the test report.

The changes refer to

- a new version for 24 V d. c. supply, type IM34-**Ex-**i/24VDC
- changes of the pcb and components for version with wide range supply
- the electrical data
- the special conditions for safe use and
- the marking.

This reads as follows:

[Ex ia Ga] IIC resp. [Ex ia Da] IIIC resp. Ex nA [ic Gc] IIC T4 Gc resp. Ex nA nC [ic Gc] IIC T4 Gc

Electrical data

Type IM34-**Ex-**i

Supply circuit $U_n = 20 \dots 250 \text{ V a. c. resp. } 20 \dots 125 \text{ V d. c.; } P \leq 3 \text{ W}$
(Terminals 11, 12) $U_m = 250 \text{ V a. c. resp. } 125 \text{ V d. c.}$

Type IM34-**Ex-**i/24VDC

Supply circuit $U_n = 20 \dots 30 \text{ V d. c., } P \leq 2 \text{ W}$
(Terminals 11, 12) $U_m = 250 \text{ V}$

Type IM34-**Ex-**I and IM34-**Ex-**i/24VDC

Measuring circuit in type of protection Intrinsic Safety Ex ia IIC/IIB
(Terminals 1...6)

Maximum values: $U_o = 5 \text{ V}$
 $I_o = 2.5 \text{ mA}$
 $P_o = 3 \text{ mW}$

Characteristic line: linear

The effective internal capacitances and inductances are negligibly small.

For applications with marking [Ex ia Ga] IIC resp. [Ex ia Da] IIIC:

Ex ia	IIC	IIB
max. permissible external inductance	100 mH	100 mH
max. permissible external capacitance	2 μF	9.1 μF

The maximum values of the tables are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

The values of the tables for IIB and for IIC are also permissible for explosive dust atmospheres.

For applications with marking Ex nA [ic Gc] IIC T4 Gc resp. Ex nA nC [ic Gc] IIC T4 Gc:

Ex ic	IIC	IIB
max. permissible external inductance	100 mH	100 mH
max. permissible external capacitance	3.6 μF	18 μF

The maximum values of the tables are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.

The intrinsically safe measuring circuit is safely galvanically separated from all non intrinsically safe circuits up to a peak value of the voltage of 375 V.

All other electrical data remain unchanged.

Special conditions for safe use (only for zone 2 applications)

1. The temperature transmitter type IM34-**Ex-**i resp. type IM34-**Ex-**i/24VDC has to be installed in a suitable housing according to IEC 60079-15 in such a way, that a degree of protection of at least IP 54 according to IEC 60529 is reached.
2. The connecting and disconnecting of energized non intrinsically safe circuits and the operation of switches is only permitted if no explosion hazardous atmosphere exists.
3. Temperature transmitter type IM34-**Ex-**i: For the supply circuit arrangements have to be taken externally, that the peak voltage value does not exceed 140% of 85 V or of the rated voltage (higher value is valid) by transient disturbances.